

IN THE CLAIMS:

1. (Currently Amended) ~~Mixer circuit~~Apparatus comprising:
 - a down-conversion mixing component arranged for down-converting an input radio frequency signal; and
 - an active load circuit connected to output terminals of said down-conversion mixing component, wherein said active load circuit includes an active load and modulator arranged for modulating a flicker noise produced by said active load away from a signal band of a signal output by said down-conversion mixing component, wherein said active mixer load includes a first transistor, a second transistor and an operational amplifier, wherein a first output terminal of said down-conversion mixing component is connected to a first input of said operational amplifier, wherein a second output terminal of said down-conversion mixing component is connected to a second input of said operational amplifier, wherein a reference common mode voltage is applied to a reference common mode voltage input of said operational amplifier, wherein an output of said operational amplifier is connected in parallel to a respective gate of said first transistor and said second transistor, and wherein said switching elements are arranged for connecting alternately on the one hand said first output terminal of said down-conversion mixing component via said first transistor and said second output terminal of said down-conversion mixing component via said second transistor to ground, and on the other hand said first output terminal of said down-conversion mixing component via said second transistor and said second output terminal of said down-conversion mixing component via said first transistor to ground.
2. (Cancelled)
3. (Cancelled)

4. (Currently Amended) ~~Mixer circuit~~The apparatus according to claim 1, wherein said down-conversion mixing component is adapted to down-convert radio frequency current mode signals.
5. (Currently Amended) ~~Mixer circuit~~The apparatus according to claim 1, wherein said down-conversion mixing component is adapted to down-convert radio frequency voltage mode signals.
6. (Currently Amended) Receiver circuit for receiving radio frequency signals and for providing corresponding down-converted signals, ~~which~~said receiver circuit ~~comprises a mixer circuit~~comprising the apparatus according to claim 1.
7. (Previously Presented) Receiver circuit according to claim 6, wherein at least said mixing circuit and at least one component of said receiver circuit arranged for processing digital baseband signals are integrated in a single chip .
8. (Currently Amended) Chip comprising at least ~~a mixer circuit~~the apparatus according to claim 1.
9. (Currently Amended) Chip according to claim 8, wherein said ~~mixer circuit~~apparatus is implemented on said chip with a deep sub-micron semiconductor technology.
10. (Currently Amended) ~~Apparatus~~A mobile terminal comprising a ~~mixer circuit~~receiver circuit for receiving radio frequency signals and for providing corresponding down-converted signals, said receiver circuit comprising the apparatus according to claim 1.
11. (Currently Amended) Method ~~for use in a mixer circuit comprising a down-conversion mixing component and an active load circuit~~, said method comprising:

down-converting a received radio frequency signal by means of ~~said~~
down-conversion mixing component;
controlling an output voltage of said down-conversion mixing component
by means of an active load of ~~said~~an active load circuit; and
modulating a flicker noise produced by said active load away from a signal
band of said down-converted radio frequency signal, wherein said active
load circuit includes a first transistor, a second transistor and an operational
amplifier, wherein a first output terminal of said down-conversion mixing
component is connected to a first input of said operational amplifier,
wherein a second output terminal of said down-conversion mixing
component is connected to a second input of said operational amplifier,
wherein a reference common mode voltage is applied to a reference
common mode voltage input of said operational amplifier, wherein an
output of said operational amplifier is connected in parallel to a respective
gate of said first transistor and said second transistor, and wherein switching
elements are arranged for connecting alternately on the one hand said first
output terminal of said down-conversion mixing component via said first
transistor and said second output terminal of said down-conversion mixing
component via said second transistor to ground, and on the other hand said
first output terminal of said down-conversion mixing component via said
second transistor and said second output terminal of said down-conversion
mixing component via said first transistor to ground.

12. (Currently Amended) Apparatus, comprising:

means for down-converting an input radio frequency signal; and
means for providing an active load and means for modulating connected to
output terminals of said means for down-converting for modulating a flicker
noise produced by said means for providing an active load away from a
signal band of a signal output by said means for down-converting, wherein
said means for providing an active load includes a first transistor, a second
transistor and an operational amplifier, wherein a first output terminal of

said means for down-converting is connected to a first input of said operational amplifier, wherein a second output terminal of said means for down-converting is connected to a second input of said operational amplifier, wherein a reference common mode voltage is applied to a reference common mode voltage input of said operational amplifier, wherein an output of said operational amplifier is connected in parallel to a respective gate of said first transistor and said second transistor, and wherein said means for modulating comprises switching elements arranged for connecting alternately on the one hand said first output terminal of said means for down-converting via said first transistor and said second output terminal of said means for down-converting via said second transistor to ground, and on the other hand said first output terminal of said means for down-converting via said second transistor and said second output terminal of said means for down-converting via said first transistor to ground.